

***UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE
PHOENIX, ARIZONA***

***Fire Weather Annual Report
2012***

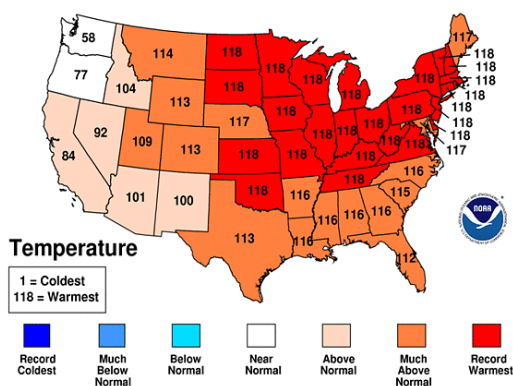
***Prepared by:
Valerie L. Meyers - Fire Weather Program Leader
Mark O'Malley – Lead Forecaster***

A. Climate and Fire Weather Overview

JANUARY-MARCH: A weakening La Nina partially contributed to warmer and drier than normal weather across the region during the first three months of 2012. Storm systems were relatively infrequent during the beginning of the year, and mainly affected the higher terrain of northern Arizona. The most notable weather system impacted the region on March 17-19 with scattered showers and thunderstorms over the southern half of Arizona; and heavy snow to the north where widespread snow accumulations of over two feet were reported. Outside of this mid-March weather system, critical fire weather conditions became more common in March, with several Fire Weather Watches and Red Flag Warnings issued for the area. As drought measures fell into severe to extreme levels during this period across south-central Arizona, the stage was set for the continuation of an active spring fire weather season.

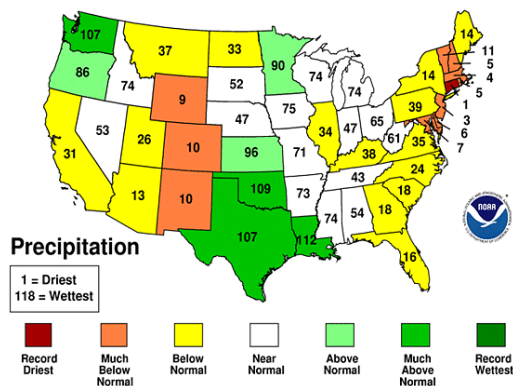
January-March 2012 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



January-March 2012 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



U.S. Drought Monitor

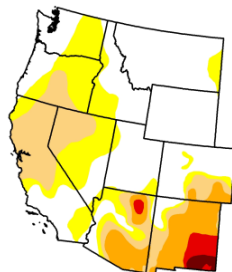
West

January 3, 2012
Valid 7 a.m. EST

	Drought Conditions (Percent Area)						
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	D4
Current	50.20	49.80	28.05	11.84	2.67	0.78	
Last Week (12/27/2011 map)	48.49	51.51	20.05	12.22	2.67	0.78	
3 Months Ago (10/04/2011 map)	66.39	33.61	19.04	14.99	9.30	3.90	
Start of Calendar Year (12/27/2011 map)	48.49	51.51	20.05	12.22	2.67	0.78	
Start of Water Year (09/27/2011 map)	66.72	33.28	19.04	14.99	9.30	3.81	
One Year Ago (12/26/2010 map)	73.26	26.74	11.98	0.89	0.00	0.00	

Intensity:

D0 Abnormally Dry, D1 Drought - Moderate, D2 Drought - Severe, D3 Drought - Extreme, D4 Drought - Exceptional



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu>

Released Thursday, January 5, 2012
Brad Rippey, U.S. Department of Agriculture

U.S. Drought Monitor

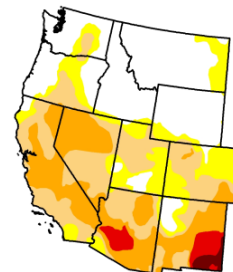
West

March 27, 2012
Valid 7 a.m. EST

	Drought Conditions (Percent Area)						
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4	D4
Current	35.56	64.44	47.91	23.86	3.78	0.94	
Last Week (03/20/2012 map)	38.04	61.96	47.33	22.70	3.39	0.94	
3 Months Ago (12/27/2011 map)	48.49	51.51	20.05	12.22	2.67	0.78	
Start of Calendar Year (12/27/2011 map)	48.49	51.51	20.05	12.22	2.67	0.78	
Start of Water Year (09/27/2011 map)	66.72	33.28	19.04	14.99	9.30	3.81	
One Year Ago (12/26/2010 map)	75.16	24.84	17.68	9.52	1.62	0.00	

Intensity:

D0 Abnormally Dry, D1 Drought - Moderate, D2 Drought - Severe, D3 Drought - Extreme, D4 Drought - Exceptional

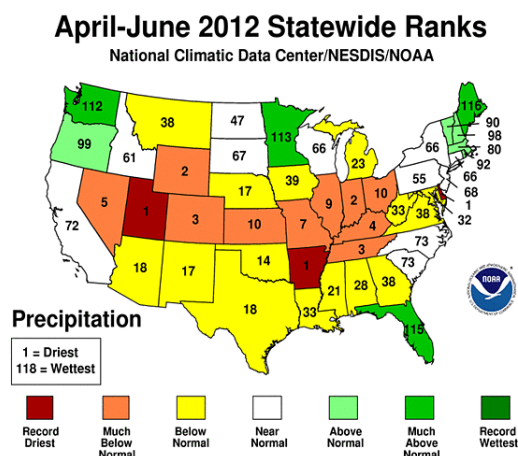
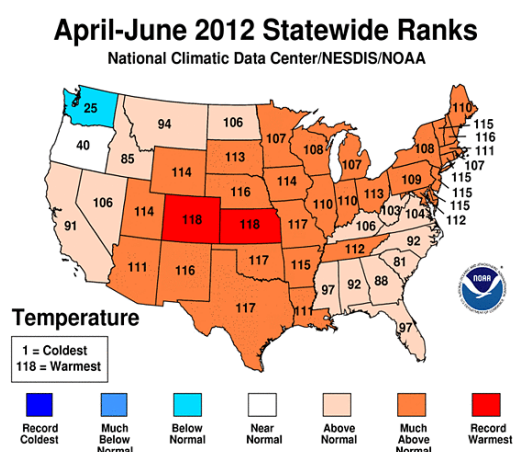


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<http://droughtmonitor.unl.edu>

Released Thursday, March 29, 2012
Eric Luebben, USDA

APRIL-JUNE: The spring season is typically dry over the southwest United States, and this was again the case in 2012 with unusually warm weather also aiding in the elevated wildfire danger. During this period, drought conditions continued to slowly deteriorate; setting the stage for an active fire weather season. Although stronger wind events were not particularly common this year, the antecedent dry conditions and well cured fuels led to numerous larger incidents across Arizona and New Mexico. This included the *Sunflower Fire* in northeast Maricopa County and the *Gladiator Fire* in southeast Yavapai County in mid-May. The majority of 2012 annual Fire Weather Watches and Red Flag Warnings were issued during this period.



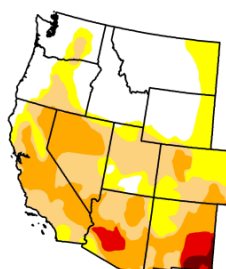
U.S. Drought Monitor

April 3, 2012
Valid 7 a.m. EST

West

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	31.44	68.56	48.86	24.84	3.78	0.93
Last Week (03/27/2012 map)	35.56	64.44	47.91	23.86	3.78	0.94
3 Months Ago (01/03/2012 map)	50.20	49.80	28.05	11.84	2.67	0.78
Start of Calendar Year (12/27/2011 map)	48.49	51.51	20.05	12.22	2.67	0.78
Start of Water Year (09/27/2011 map)	66.72	33.28	19.04	14.99	9.30	3.81
One Year Ago (03/29/2011 map)	76.08	23.92	18.56	13.12	2.12	0.00

Intensity:
D0 Abnormally Dry, D1 Drought - Moderate, D2 Drought - Severe, D3 Drought - Extreme, D4 Drought - Exceptional



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<http://droughtmonitor.unl.edu>



Released Thursday, April 5, 2012
Brian Fuchs, National Drought Mitigation Center

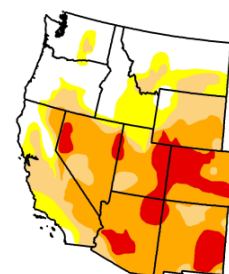
U.S. Drought Monitor

June 26, 2012
Valid 7 a.m. EST

West

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	36.55	63.45	62.69	45.38	12.44	0.00
Last Week (06/19/2012 map)	26.24	73.76	58.33	37.40	7.88	0.00
3 Months Ago (03/27/2012 map)	35.56	64.44	47.91	23.86	3.78	0.94
Start of Calendar Year (12/27/2011 map)	48.49	51.51	20.05	12.22	2.67	0.78
Start of Water Year (09/27/2011 map)	66.72	33.28	19.04	14.99	9.30	3.81
One Year Ago (03/29/2011 map)	76.53	21.47	17.90	13.98	10.10	5.65

Intensity:
D0 Abnormally Dry, D1 Drought - Moderate, D2 Drought - Severe, D3 Drought - Extreme, D4 Drought - Exceptional



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<http://droughtmonitor.unl.edu>



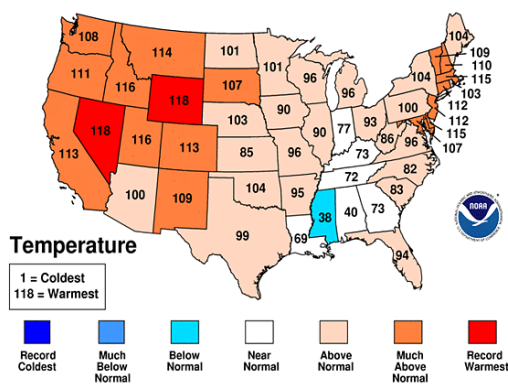
Released Thursday, June 28, 2012
Richard Heim, National Climatic Data Center, NOAA

JULY-SEPTEMBER: The moisture from the North American Monsoon, which had only slowly developed into southern Arizona by the end of June, rapidly spread north in early July as the summer season subtropical high pressure core intensified over the central United States. The month of July ended up as the only month during the calendar year with below normal temperatures, however the resumption of hot summer weather in August and September pushed the seasonal average into the above normal category. Fairly regular thunderstorm events and

precipitation over southern Arizona and California kept fuels rather moist and the overall fire threat limited, as drought conditions were mitigated to some degree by the precipitation. No Fire Weather Watches or Red Flag Warnings were issued during this period.

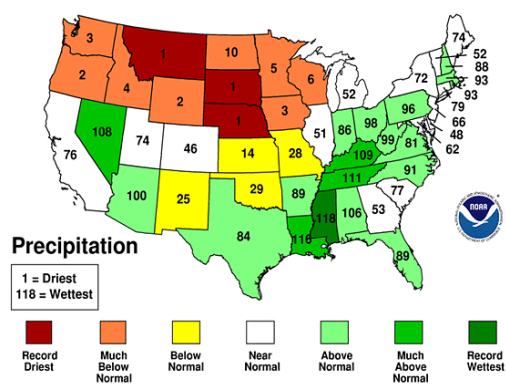
July-September 2012 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



July-September 2012 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



U.S. Drought Monitor

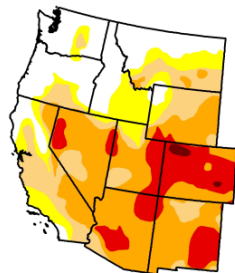
July 3, 2012

Valid 7 a.m. EST

West

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	22.87	77.13	64.15	46.88	14.70	0.48
Last Week (06/26/2012 map)	36.55	63.45	62.69	45.38	12.44	0.00
3 Months Ago (04/03/2012 map)	31.44	68.56	48.66	24.84	3.78	0.93
Start of Calendar Year (12/27/2011 map)	48.49	51.51	20.05	12.22	2.67	0.78
Start of Water Year (09/27/2011 map)	66.72	33.28	19.04	14.99	9.30	3.81
One Year Ago (09/26/2011 map)	73.59	26.41	19.31	16.01	11.35	5.65

Intensity:
D0 Abnormally Dry
D1 Drought - Moderate
D2 Drought - Severe
D3 Drought - Extreme
D4 Drought - Exceptional



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<http://droughtmonitor.unl.edu>

USDA
Released Thursday, July 5, 2012
Rich Tinker, Climate Prediction Center/NOAA

U.S. Drought Monitor

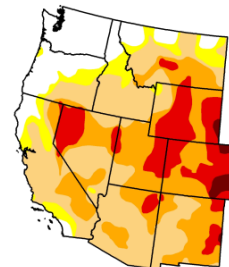
September 25, 2012

Valid 7 a.m. EST

West

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	15.12	84.88	77.15	43.65	16.85	1.77
Last Week (09/16/2012 map)	15.26	84.74	76.89	43.64	16.85	1.77
3 Months Ago (04/03/2012 map)	36.55	63.45	62.69	45.38	12.44	0.00
Start of Calendar Year (12/27/2011 map)	48.49	51.51	20.05	12.22	2.67	0.78
Start of Water Year (09/27/2011 map)	66.72	33.28	19.04	14.99	9.30	3.81
One Year Ago (09/26/2011 map)	73.65	26.35	19.04	14.99	9.30	3.81

Intensity:
D0 Abnormally Dry
D1 Drought - Moderate
D2 Drought - Severe
D3 Drought - Extreme
D4 Drought - Exceptional



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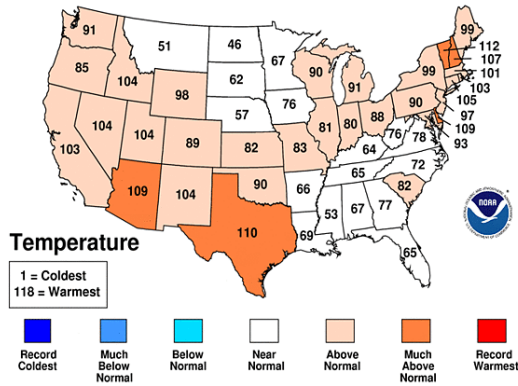
<http://droughtmonitor.unl.edu>

USDA
Released Thursday, September 27, 2012
Anthony Artusa, NOAA/NWS/NCEP/CPC

OCTOBER-DECEMBER: Anomalous dry and warm conditions characterized the weather for the latter portion of 2012 with very few storm systems affecting the region. Although drought conditions intensified slightly with the lack of precipitation, more frequent high pressure and light winds were common over the area; and subsequent fire danger remained quite minimal. Only 1 Red Flag Warning was issued during this period in October.

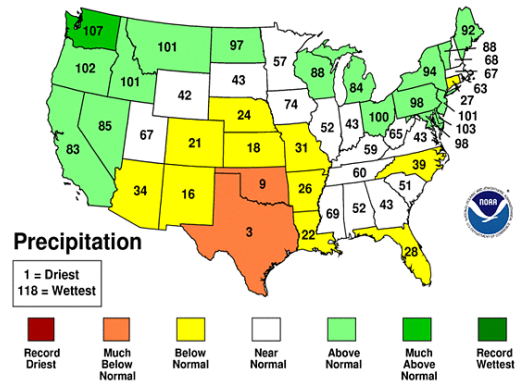
October-December 2012 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



October-December 2012 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



U.S. Drought Monitor

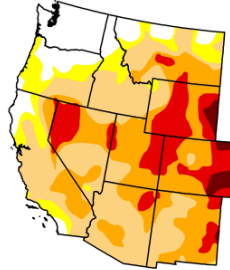
West

October 2, 2012
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	13.81	86.39	77.12	43.47	16.27	2.14
Last Week (09/25/2012 map)	15.12	84.88	77.15	43.65	16.85	1.77
3 Months Ago (07/03/2012 map)	22.87	77.13	84.15	46.88	14.70	0.48
Start of Calendar Year (12/27/2011 map)	48.49	51.51	20.05	12.22	2.67	0.78
Start of Water Year (09/25/2012 map)	15.12	84.88	77.15	43.65	16.85	1.77
One Year Ago (09/27/2011 map)	66.72	33.28	19.04	14.99	9.30	3.81

Intensity:

D0 Abnormally Dry, D1 Drought - Moderate, D2 Drought - Severe, D3 Drought - Extreme, D4 Drought - Exceptional



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<http://droughtmonitor.unl.edu>

USDA, National Drought Mitigation Center, NOAA

Released Thursday, October 4, 2012
Anthony Artusa, NOAA/NWS/NCEP/CPC

U.S. Drought Monitor

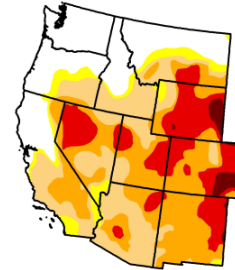
West

December 25, 2012
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	24.28	75.72	69.42	45.80	18.83	2.15
Last Week (12/18/2012 map)	24.28	75.72	69.42	45.92	18.83	2.15
3 Months Ago (09/25/2012 map)	15.12	84.88	77.15	43.65	16.85	1.77
Start of Calendar Year (12/27/2011 map)	48.49	51.51	20.05	12.22	2.67	0.78
Start of Water Year (09/25/2012 map)	15.12	84.88	77.15	43.65	16.85	1.77
One Year Ago (12/29/2011 map)	86.71	33.29	17.00	12.22	4.16	1.82

Intensity:

D0 Abnormally Dry, D1 Drought - Moderate, D2 Drought - Severe, D3 Drought - Extreme, D4 Drought - Exceptional



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<http://droughtmonitor.unl.edu>

USDA, National Drought Mitigation Center, NOAA

Released Thursday, December 27, 2012
Richard Heim, National Climatic Data Center, NOAA

B. Red Flag Warning Verification

The National Weather Service in Phoenix issued a total of **22** Red Flag Warnings (RFW) all due to strong winds and low relative humidity. At this time, NWS Phoenix does not issue watches, or warnings for dry thunderstorms in Arizona per the Region 3 AOP. Per Region 5 AOP, criteria for a dry lightning RFW apply only to fire weather zones 230 and 232 in southeast California.

****** There were **no** Red Flag Warnings issued for dry thunderstorm events in 2012.

- Number of RFWs Issued (by zone)
- Probability of Detection (POD) (Highest Skill = 1.0)
- Far Alarm Ratio (FAR) (Highest Skill = 0.0)
- Critical Success Index (CSI) (Highest Skill = 1.0)
- Average Lead Time of the Warning

<u>Zone</u>	<u>Issued</u>	<u>POD</u>	<u>FAR</u>	<u>CSI</u>	<u>Average Lead Time (hours)</u>
131/232	6	1.00	0.17	0.83	21.88
132	6	1.00	0.33	0.67	26.83
133	6	1.00	0.33	0.67	31.59
230	2		1.00	0.00	
232	2	1.00	0.50	0.50	20.75
Total	22	1.00	0.36	0.64	24.39

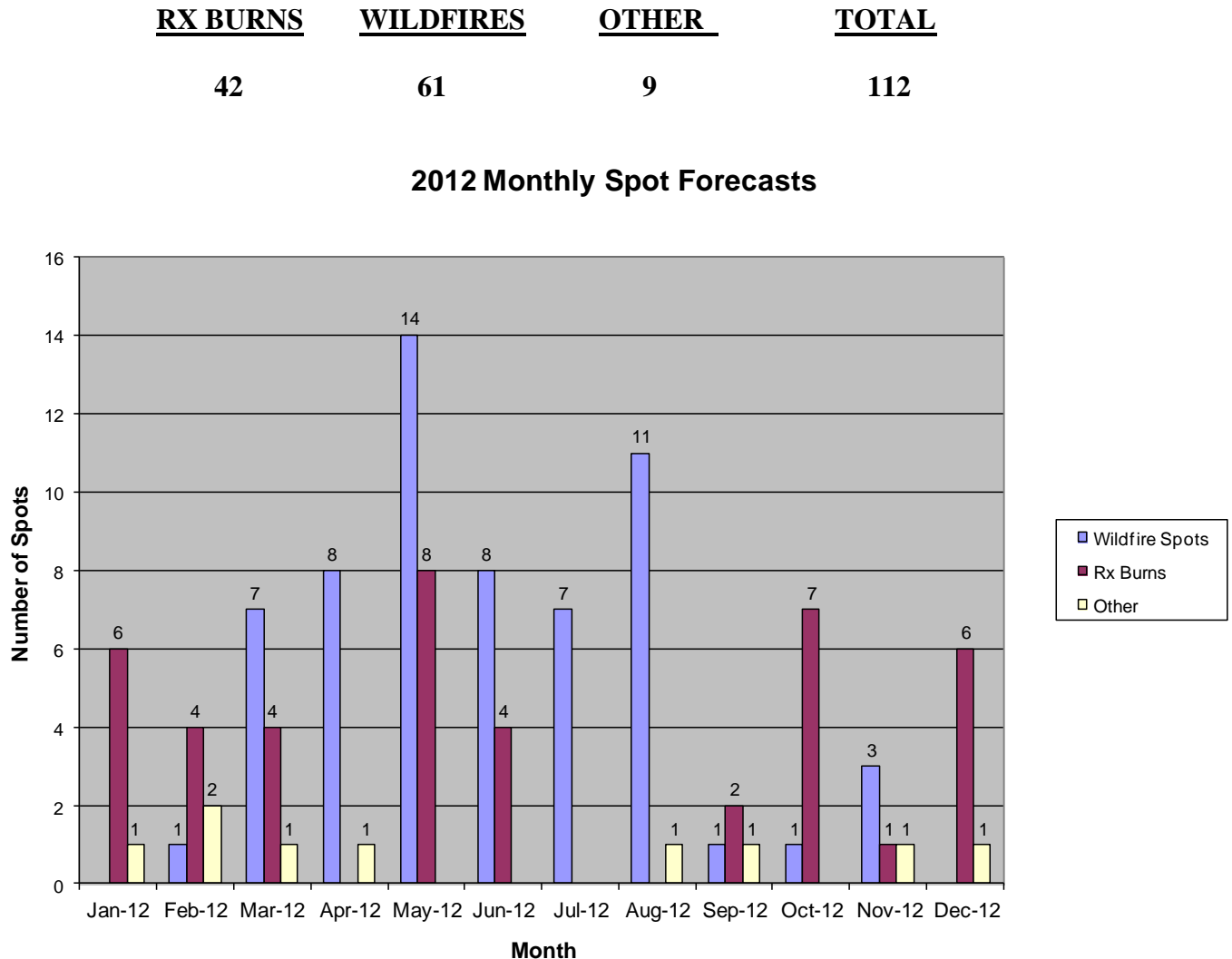
C. Fire Weather Watch Verification

The National Weather Service in Phoenix issued a total of **14** Fire Weather Watches in 2012, all due to strong winds and low relative humidity.

<u>Zone</u>	<u>Issued</u>	<u>Upgraded to RFW</u>	<u>Verified</u>	<u>Average Lead Time (hours)</u>
131/231	3	3	2	50.38
132	4	4	2	53.00
133	6	6	4	56.58
230	0	0	0	
232	1	1	0	
Total	14	14	8	55.35

D. Spot Forecasts

The National Weather Service in Phoenix issued a total of **112** spot forecasts during 2012. The chart below breaks down the number and type of spot forecast issued per month.



E. Incident Meteorologist (IMET) Dispatches

WFO PHOENIX:

<u>Incident Name</u>	<u>Location</u>	<u>Dispatch Days</u>	<u>Dispatch Dates</u>
Sunflower Fire	Sunflower, Arizona	7 Days	5/14 – 5/20/2012

F. Fire Weather Training and Outreach Activities

<u>Dates</u>	<u>Activity</u>	<u>Agency</u>	<u>Location</u>
February 16-17	Region 3 AOP Preseason Meeting	NWS and Southwest Area Representatives	Virtual - Internet
March 7	Burn Boss Workshop	Tonto National Forest /PIDC	Mesa, AZ
March 7-8	Region 5 AOP Preseason Meeting	NWS and California Representatives	Virtual - Internet
March 9-12	S290 Instruction	Arizona Wildland Fire and Incident Management Academy	Prescott, AZ
April 10	Fireline Safety Training	Tonto National Forest	Phoenix, AZ
April 11	Wildland Fire Statewide Exercise	Arizona Department of Emergency Management	Phoenix, AZ
May 3	Spring FMO Meeting	BLM / Tonto National Forest	Mesa, AZ
June 11	Public Meeting Sunflower Fire Post-Burn	Maricopa County, Tonto National Forest, BAER, SRP	Sunflower, AZ
Multiple/Seasonal	Smoke Management and Air Quality Conference Calls	ADEQ, NWS Offices, SWA Predictive Services	Virtual - Internet